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US 6092078 A  
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(58) Field of Search

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Online: WPI, EPODOC, PAJ, INSPEC, XPESP, IBM TDB,  
COMPUTER, Selected Internet sites

(54) Abstract Title

**Displaying data from a peripheral device on an Internet browser**

(57) The present disclosure relates to a method and apparatus for viewing data. The apparatus comprises an Internet browser (214), a peripheral device driver (218), and an Internet browser plug-in (216) configured to reconfigure data received from a peripheral device such as a scanner or digital camera via the peripheral device driver into a format suitable for viewing with the Internet browser. With this apparatus, data can be viewed by receiving a request for peripheral device input (300), receiving data from the peripheral device (302), processing data with an Internet browser plug-in (304), and displaying the data with an Internet browser GUI (306). Through utilization of the Internet browser, data from peripheral devices can be viewed with a minimum of necessary software. Accordingly, data can be viewed with computing devices having relatively small storage capacities such as a net PC, or a handheld device such as a PDA.

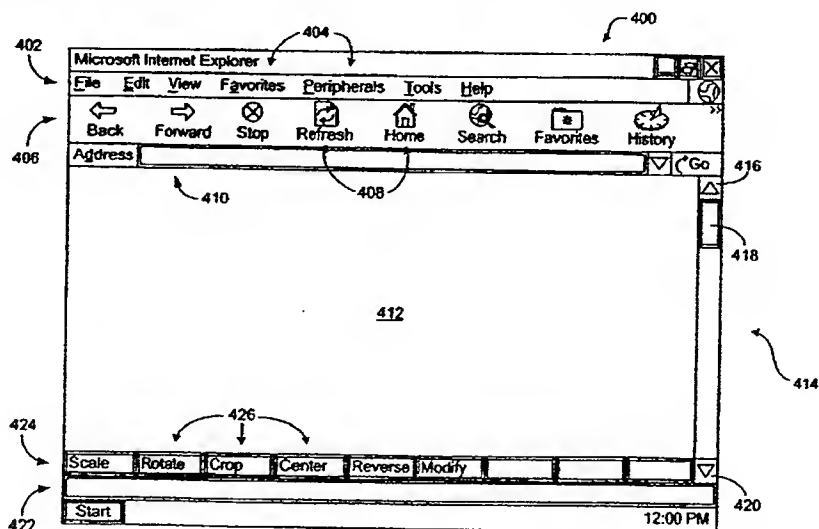


FIG. 4

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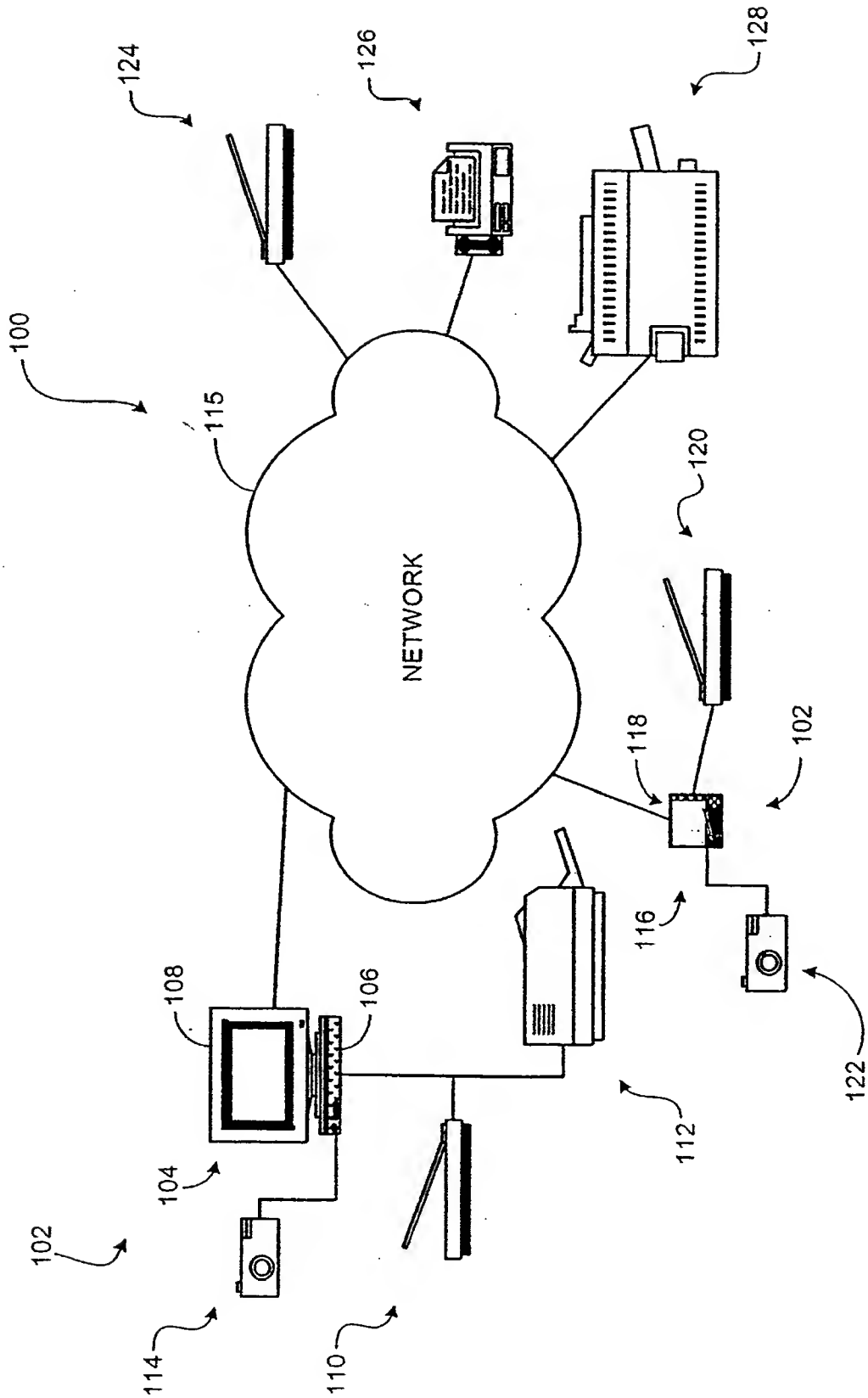


FIG. 1

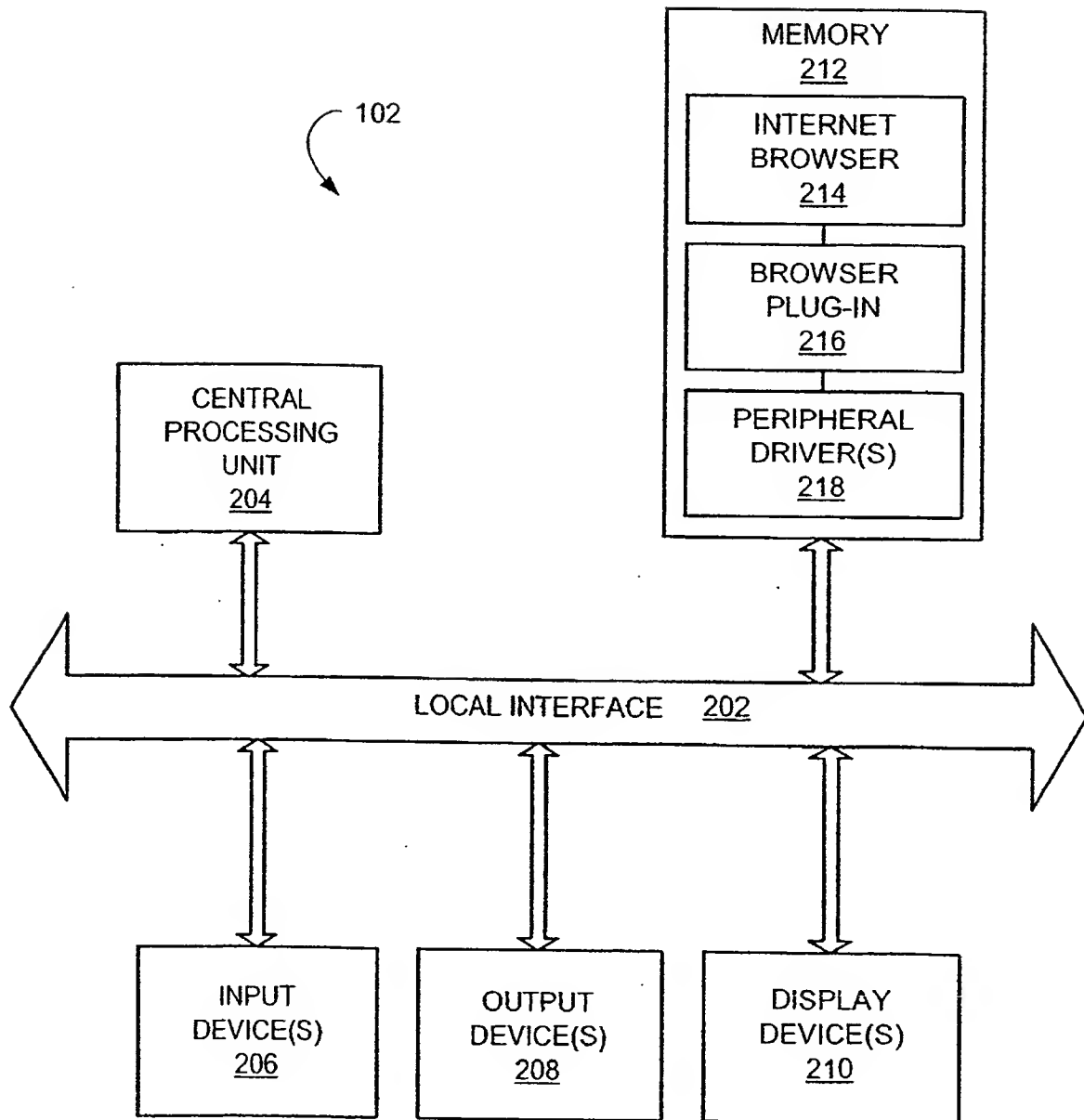


FIG. 2

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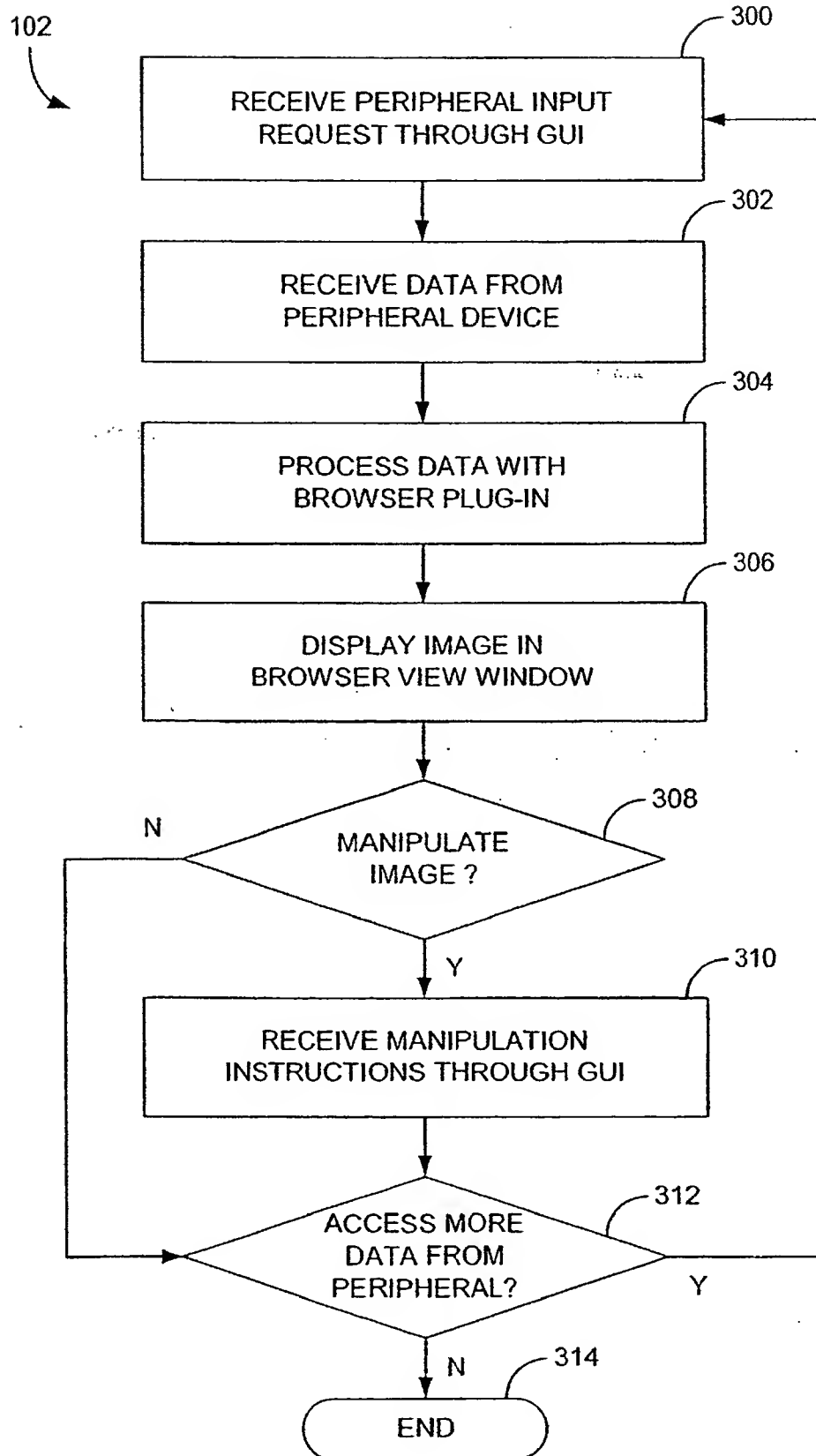


FIG. 3

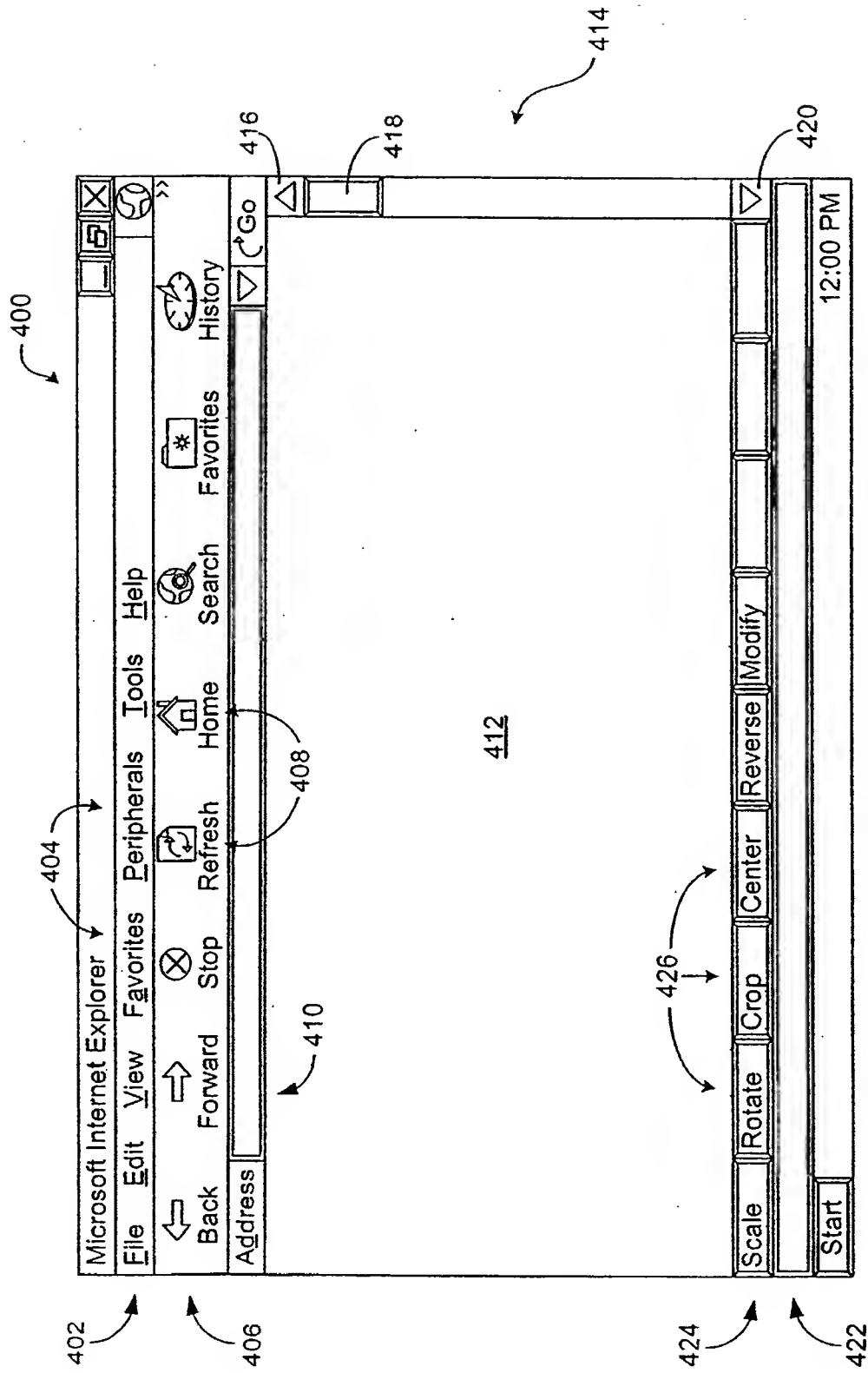


FIG. 4

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## METHOD AND SYSEM FOR VIEWING DATA

FIELD OF THE INVENTION

The present disclosure relates to a method and system for viewing data. More particularly, the present disclosure relates to a method and system for viewing data input into a computing device from a peripheral device.

BACKGROUND OF THE INVENTION

As use of the Internet has grown, so has interest in simple devices that can be used to gain Internet access. More particularly, interest has grown in relatively low memory, low cost devices that can access the World Wide Web. One example of such a device is the so-called net PC. Net PCs typically comprise computing devices that include the common components of a standard personal computer (PC) such as a central processing unit (CPU), hard drive, memory, monitor, keyboard, and mouse. Unlike standard PCs, however, net PCs have limited storage capacity to keep the cost of the device low. In another example, some handheld devices such as personal digital assistants (PDAs) and even mobile telephones can be used to access the Internet. Like net PCs, these handheld devices have limited storage capacity.

Due to the limited storage capacity of the simple Internet-enabled devices described above, these devices have limited functionality. For instance, such devices typically cannot be used to access information from peripheral devices. The reason for this limitation is that such peripheral devices typically require a relatively large software package that is stored on the computing device with which the peripheral

devices communicate with the computing device and with which the data is configured for viewing on the computing device. Accordingly, simple computing devices normally cannot be used to view the textual, graphical, and image data scanned by a scanner. Similarly, such computing devices normally cannot be used to display digital images captured by digital cameras. In both situations, a substantial amount of software is required for proper communication with the peripheral device and for processing of the data transmitted from the peripheral device.

From the foregoing, it can be appreciated that it would be desirable to have a method and system for viewing data that does not require a large amount of software stored on the computing device with which the information is viewed.

#### SUMMARY OF THE INVENTION

The present disclosure relates to a method and apparatus for viewing data. The apparatus typically comprises an Internet browser, a peripheral device driver, and an Internet browser plug-in configured to reconfigure data received from a peripheral device via the peripheral device driver into a format suitable for viewing with the Internet browser. With this apparatus, data can be viewed by receiving a request for peripheral device input, receiving data from the peripheral device, processing data with an Internet browser plug-in, and displaying the data with an Internet browser GUI. Through utilization of the Internet browser, data from peripheral devices can be viewed with a minimum of necessary software. Accordingly, data can be viewed with computing devices having relatively small storage capacities.

## BRIEF DESCRIPTION OF THE DRAWINGS

The invention can be better understood with reference to the following drawings. The components in the drawings are not necessarily to scale, emphasis instead being placed upon clearly illustrating the principles of the present invention.

5           FIG. 1 is a schematic of a network system in which the present invention can be used.

          FIG. 2 is a block diagram of a computing device shown in FIG. 1 with which data can be viewed.

          FIG. 3 is a flow diagram of a method for viewing data with the computing  
10       device shown in FIG. 2.

          FIG. 4 is a schematic view of an example graphical user interface for the computing device shown in FIG. 2.

## DETAILED DESCRIPTION

15           Referring now in more detail to the drawings, in which like numerals indicate corresponding parts throughout the several views, FIG. 1 illustrates a network system 100 with which the method and system for viewing data can be used. Although this network system 100 is illustrated in FIG. 1, it will be understood from the discussion that follows that the computing device used to view the data need not be connected to a  
20       network to practice the invention. A network system 100 is shown, however, by way of example to illustrate alternative uses of the method and system for viewing data.

          As identified in FIG. 1, the network system 100 can comprise one or more computing devices 102. The computing device 102 can comprise a net PC 104 having a processor 106 and a monitor 108. Normally, the processor 106 comprises the typical  
25       components of a net PC, namely a CPU, hard drive, and memory (not shown). The net



PC 104 is shown electrically connected to a scanner 110, a printer 112, and a digital camera 114. By way of example, the net PC 104 can be connected to these peripheral devices through a small computer system interface (SCSI). It will be understood, however, that alternative interface protocols can be used, if desired. In addition to its  
5 connection to the scanner 110, printer 112, and digital camera 114, the net PC 104 can be connected to a network 115. By way of example, this network can comprise a wide area network (WAN), a local area network (LAN), the Internet, or any other network to which computing devices can connect.

As is further indicated in Fig. 1, the computing device 102 can comprise a  
10 handheld device 116. Like the net PC 104, the handheld device 116 typically comprises a CPU and memory, but further comprises a display screen 118. The handheld device 116 is shown electrically connected to a further scanner 120, a further digital camera 122, and the network 115. In addition, the network system 100 is shown as including a third scanner 124, a facsimile machine 126, and a further printer 128. As will be  
15 appreciated by persons having ordinary skill in the art, where the computing devices 102 are connected to the network 115, these additional peripheral devices are capable of interacting with the computing devices 102. Although FIG. 1 only illustrates a net PC 104 and a handheld device 116 as possibilities for the computing devices 102, it will be understood that other possibilities exist and are considered to be within the scope of the  
20 invention.

FIG. 2 illustrates a block diagram of an example computing device 102. This block diagram is intended as a generic representation of an example computing device 102 with which data sent from a peripheral device can be viewed. As indicated in FIG. 2, the computing device 102 generally comprises a local interface 202 through which the  
25 various electrical connections are made within the device. Connected to the local

interface 202 is a CPU 204, input device(s) 206, output device(s) 208, and display device(s) 210. In addition to these components, the computing device 102 further includes a memory 212. As will be understood by persons having ordinary skill in the art, the memory 212 comprises both storage memory and system memory. Therefore, 5 the memory 212 can comprise, for instance, a hard drive and random access memory (RAM).

The nature of the input device(s) 206 depends upon the configuration of the computing device 102. Where the computing device 102 comprises a net PC such as net PC 104 shown in FIG. 1, the input device(s) 206 can include a keyboard and a mouse. 10 Where the computing device 102 is a handheld device as handheld device 116 shown in FIG. 1, the input device(s) 206 can comprise input keys provided on the device and/or a touch-sensitive screen of the device. The output device(s) 206 normally comprise standard output hardware such as cable interfaces and/or infrared ports. As identified above with reference to FIG. 1, the display device(s) 210 typically comprise a monitor 15 such as monitor 108 shown in FIG. 1 where the computing device is a net PC, or a display screen such as display screen 118 shown in FIG. 1 where the computing device is a handheld device.

As is further indicated in FIG. 2, the memory 212 comprises an Internet browser 214, a browser plug-in 216, and one or more peripheral drivers 218. As will be 20 appreciated by persons having ordinary skill in the art, the Internet browser 214 is a nearly ubiquitous component in substantially any computing device that is adapted for connecting to and browsing of the Internet. By way of example, the Internet browser 214 can comprise Netscape Navigator® or Microsoft Internet Explorer®, although it will be understood that the browser can comprise substantially any browser with which a 25 user can connect to and browse the Internet.

The Internet browser 214 normally comprises software designed to display HyperText Markup Language (HTML) formatted data. By way of example, the Internet browser 214 is adapted to display various pages of Internet web sites available on the World Wide Web. In particular, the browser 214 interprets the HTML files of the web site that are loaded into the browser, and automatically configures these files for viewing by the user.

The Internet browser 214 is adapted to produce a graphical user interface (GUI) with which the user can view web pages and navigate the various web sites. The GUI is presented to the user with the display device 210 such that the user can view the web pages as well as the various command buttons and pull-down menus with which the user can manipulate the pages and navigate the web sites. For instance, where the computing device 102 is a net PC, a GUI can be presented to the user via a monitor such as monitor 106 in FIG. 1. Alternatively, where the computing device 102 is a handheld device, the GUI can be presented to the user with a display screen such as display screen 116 shown in FIG. 1. Normally, the GUI is configured to present a plurality of buttons and other input means (see, e.g., FIG. 4) through which the user can navigate the World Wide Web and manipulate the displayed information.

The peripheral driver(s) 218 typically comprise software responsible for low level communications between the computing device 102 and a peripheral device such as scanners 110, 120, and 124, cameras 114 and 122, and facsimile machine 126 shown in FIG. 1. As is known in the art, these drivers 218 normally only comprise the very minimum code necessary for communications and, therefore, do not normally comprise the software necessary for processing the data for viewing.

The browser plug-in 216 typically comprises a relatively small amount of software that is designed to facilitate communications between the Internet browser 214 and the peripheral drivers 218. Normally, the browser plug-in 216 is stored in a sub-directory of the browser directory in the storage memory of the computing device 102.

5 As is explained in greater detail below, the plug-in 216 is configured such that data transmitted from a peripheral device to the computing device 102 can be loaded into the Internet browser 214 so that the transmitted data can be viewed via the browser. Due to the relatively small amount of software which comprises the browser plug-in 216, the plug-in facilitates viewing of the input data without the need for a large amount of  
10 additional software as is typically the case for most peripheral devices. Accordingly, through the presence of the browser plug-in 216, an Internet-enabled computing device having relatively low storage capacity can be used to view data input from a peripheral device.

As will be appreciated by persons having ordinary skill in the art, the browser  
15 plug-in software can be stored and transported on any computer readable medium for use by or in connection with an instruction execution system, apparatus, or device, such that a computer-based system, processor containing system, or other system can fetch the instructions from the instruction execution system, apparatus, or device and execute the instructions. In the context of this disclosure, a "computer readable medium" can be  
20 a means that can contain, store, communicate, propagate, or transport the program for use by or in connection with the instruction execution system, apparatus or device. A compute readable medium can be, for example, an electronic, magnetic, optical, electromagnetic, infrared, or semiconductor system, apparatus, device, or propagation medium. More specific examples of compute readable media include the following: an  
25 electrical connection having one or more wires, camera memory card, affordable

computer diskette, a random access memory (RAM), a read only memory (ROM), an erasable programmable read only memory (EPROM or Flash memory), an optical fiber, and a portable compact disk read only memory (CD ROM). It is to be noted that the computer readable medium can even be paper or another suitable medium upon which the program is printed as the program can be electronically captured, via for instance optical scanning of the paper or other medium, then compiled, interpreted, or otherwise processed in a suitable manner if necessary, and then stored in a computer memory.

FIG. 3 illustrates method for viewing data with the computing device 102 shown in FIG. 2. As indicated in block 300, the viewing process is initiated when an input request is received by the computing device 102 through the browser GUI. FIG. 4 illustrates an example browser GUI 400. In particular, illustrated is a browser GUI based upon Microsoft Internet Explorer®. Although a Microsoft Internet Explorer® GUI is illustrated in FIG. 4, it is to be understood that this GUI is shown for purposes of example only and that the browser can comprise substantially any Internet browser. As identified above, the browser GUI 400 normally is presented to the user on the display device of the computing device. By way of example, this display device can comprise monitor 108 or display screen 118 shown in FIG. 1.

Normally, the browser GUI 400 includes a tool bar 402 which, as is known in the art, permits the user to input various commands into the Internet browser 214. By way of example, the tool bar 402 can comprise a plurality of pull-down menus 404 that contain a plurality of different input commands. For instance, as shown in FIG. 4, the tool bar 402 can comprise menus having the headings "File," "Edit," "View," "Favorites," "Peripherals," "Tools," and "Help." In addition to the tool bar 402, the browser GUI 400 normally includes a navigation bar 406 with which the user can navigate the Internet when the computing device 102 is online. This navigation bar 406

normally comprises a plurality of navigation buttons 408 that can be selected by the user by "clicking" on the buttons with a mouse or, where the computing device is a handheld device, tapping on the buttons with a stylus.

The browser GUI 400 further includes an address block 410 with which the user  
5 can directly access particular web sites by entering a web site address. Typically provided below the tool bar 402, navigation bar 406, and address block 410 is a viewing window 412 with which the various web pages and, in the case of the invention, peripherals data, can be viewed by the user. As is conventional with Internet browsers, the browser GUI 400 normally includes a scroll bar 414 that is used to scroll through  
10 web pages that do not fit within the viewing window 412. The scroll bar 414 normally includes an up arrow button 416, a scrolling button 418, and a down arrow button 420.

The browser GUI 400 typically further includes a status bar 422 that indicates the connection status with the Internet. In addition to the status bar 422, the browser GUI 400 can further include a peripherals tool bar 424 that is placed at the bottom of the  
15 viewing window 412 adjacent the status bar 422. As indicated in FIG. 4, the peripherals tool bar 424 can comprise a plurality of peripherals buttons 426 that can be used to manipulate the image displayed in the viewing window 412 in various ways. By way of example, as indicated in FIG. 4, the peripherals tool bar 424 can include buttons 426 for "Scale," "Rotate," "Crop," "Center," "Modify," and "Reverse" commands. As is  
20 discussed below, these buttons 424 can be used to manipulate data input from a peripheral device and displayed in the viewing window 412 of the browser GUI 400.

With reference back to FIG. 3, the input requests identified in block 300 can be received in a variety of ways. For instance, the user can select the peripherals pull-down menu 404 shown in FIG. 4 that is provided with a plurality of different commands  
25 relevant to receiving and manipulating data input from a peripheral device. By way of

example, the peripherals pull-down menu 404 can include a command to "receive data" from a peripheral device connected to the computing device. If a scanner, such as scanner 110 or 120 shown in FIG. 1, is directly connected to the computing device 102, the user can instruct the computing device 102 to receive scanned data from the scanner.

5 In another example, the user can command the computing device 102 to receive scanned data from a remote scanner, such as scanner 124 shown in FIG. 1, that is coupled with the computing device via the network 115. Similarly, the peripherals pull-down menu 404 can be used to collect image data from a digital camera, such as digital cameras 114 and 122 shown in FIG. 1. In yet a further alternative, the user can collect  
10 data from a facsimile machine, such as facsimile machine 126 illustrated in FIG. 1, where the facsimile machine has such output capability. Generally stated, the user can use the browser GUI 400 to summon data from substantially any peripheral device capable of outputting viewing data to a computing device.

Once the input request has been received by the computing device 102, the data  
15 from the peripheral device can be received as indicated in block 302. After this data has been received, the data is processed for viewing with the browser plug-in 216 as indicated in block 304. In particular, the browser plug-in 216 re-configures the data, whether it be from a scanner, digital camera, or other peripheral device, to place the data into HTML format. Once this data has been placed in HTML format, the Internet  
20 browser 214 can display the image in the viewing window 412 of the browser GUI 400 as indicated in block 306. Therefore, the user can view the input data from the peripheral device with the Internet browser GUI 400 regardless of whether the computing device 102 is currently connected to the Internet.

At this point, the image can be manipulated, if desired (see 308), in several  
25 different ways when manipulation instructions are received through the GUI 400 as

indicated in block 310. For instance, if the user is content with the configuration, he or she can save the image by, for example, selecting a "save" command located in the peripherals pull-down menu 404. Alternatively, the user can print a hard copy of the viewed image by selecting a "print" command similarly located within the peripherals pull down menu 404. Where a print command is input by the user, the image displayed in the viewing window 412 can be printed by, for example, printer 112 and/or printer 128 illustrated in FIG. 1.

Where the user is not content with the configuration of the image, he or she can manipulate the image. For instance, if the image is too large or too small, the user can scale the image with the "Scale" peripheral button 426. Similarly, if the orientation of the image is not acceptable, the image can be rotated by selecting the "Rotate" peripheral button 426. Other such conventional image manipulation can be effected through the remaining peripheral buttons 426 indicated in FIG. 4. Accordingly, the user can crop, center, reverse, and modify the image with these buttons. Although particular commands are noted in FIG. 4, it is to be understood that these buttons are presented to the reader as examples only and that substantially any other common image manipulation can be performed upon the image with selection of a peripheral button 426. Alternatively, the peripherals tool bar 424 can be omitted, if desired, where the peripheral pull-down menu 404 comprises all the commands for the various image manipulation options.

Returning to FIG. 3, after any manipulations or other processing has been performed, flow continues to 312 at which further viewing can be terminated, as indicated at termination point 314, or where the viewing process can begin anew by returning to block 300.



While particular embodiments of the invention have been disclosed in detail in the foregoing description and drawings for purposes of example, it will be understood by those skilled in the art that variations and modifications thereof can be made without departing from the scope of the invention as set forth in the following claims.

## CLAIMS

What is claimed is:

1           1.     A method for viewing data, comprising:  
2           receiving a request for peripheral device input (300);  
3           receiving data from the peripheral device (302);  
4           processing data with an Internet browser plug-in (304); and  
5           displaying the data with an Internet browser graphical user interface (GUI)  
6           (306).

1           2.     The method of claim 1, wherein the step of processing data with an  
2     Internet browser plug-in comprises reconfiguring the data into HyperText Markup  
3     Language (HTML) format.

1           3.     The method of claim 1, wherein the step of displaying the data  
2     comprises displaying the data in a viewing window of the Internet browser GUI.

1           4.     The method of claim 1, further comprising manipulating the data  
2     displayed with the Internet browser GUI (310).

1           5.     The method of claim 4, wherein the step of manipulating the data is  
2     conducted in response to manipulation commands received with the Internet browser  
3     GUI.

6. Apparatus for viewing data, comprising:  
an Internet browser (214);  
a peripheral device driver (218); and  
an Internet browser plug-in (216) configured to reconfigure data received from  
a peripheral device via the peripheral device driver into a format suitable for viewing  
with the Internet browser.

7. The apparatus of claim 6, wherein the Internet browser plug-in is  
configured to reconfigure the data received from the peripheral device into HTML  
format.

8. The apparatus of claim 6, wherein the apparatus is provided on a net  
PC.

9. The apparatus of claim 6, wherein the apparatus is provided in a  
handheld device.



INVESTOR IN PEOPLE

Application No: GB 0125423.4  
Claims searched: 1-9

Examiner: Ben Micklewright  
Date of search: 15 May 2002

## Patents Act 1977 Search Report under Section 17

### Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK CI (Ed.T): G4A (AFGDC AFGDX)

Int CI (Ed.7): G06F (13/10)

Other: Online: WPI, EPODOC, PAJ, INSPEC, XPESP, IBM TDB, COMPUTER,  
Selected Internet sites

### Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2347766 A (IBM) See whole document, e.g. the abstract	1-9
X,P	WO 01/01267 A1 (FLASHPOINT) See whole document, e.g. pages 4-8	1-9
X	EP 0991227 A2 (HEWLETT-PACKARD) See whole document, e.g. the abstract and the figures	1-9
X	US 6092078 (ADOLFSSON) See e.g. column 3	1-9
X	JP 2000092262 A (BROTHER) See e.g. the WPI and PAJ abstracts	1-9
X	Health Management Technology, vol. 20, no. 3, page 48, April 1999, "Latest Products (HIMSS show)(Buyers Guide)", ISSN: 1074-4770, see e.g. pages 1,2 of printout	1-9

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.